

July 21, 2003

Mr. John L. Skolds  
President and Chief Nuclear Officer  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, IL 60555

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE  
DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3, AND QUAD CITIES  
NUCLEAR POWER STATION, UNITS 1 AND 2, LICENSE RENEWAL  
APPLICATION

Dear Mr. Skolds:

By letter dated January 3, 2003, Exelon Generation Company, LLC (EGC) submitted, for the Nuclear Regulatory Commission's (NRC's) review, an application pursuant to 10 CFR Part 54, to renew the operating license for the Dresden Nuclear Power Station, Units 2 and 3, and Quad Cities Nuclear Power Station, Units 1 and 2. We are reviewing the information contained in the license renewal application and have identified, in the enclosure, areas where additional information is needed to complete its review. Specifically, the enclosed request for additional information (RAIs) is from Section 2.1, "Scoping and Screening Methodology."

We have discussed these RAIs with your staff during an audit conducted on May 20-23, 2003, and subsequently provided the RAIs to Messrs. R. Stachniak and F. Polaski of your staff on June 12, 2003. We are willing to meet with EGC prior to the submittal of the responses to provide clarifications of the staff's RAIs.

Sincerely,

*/RA/*

Tae Kim, Senior Project Manager  
License Renewal Section A  
License Renewal and Environmental Impacts Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket Nos.: 50-237, 50-249, 50-254,  
and 50-265

Enclosure: As stated

cc w/enclosures: See next page

Mr. John L. Skolds  
President and Chief Nuclear Officer  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, IL 60555

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE  
DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3, AND QUAD CITIES  
NUCLEAR POWER STATION, UNITS 1 AND 2, LICENSE RENEWAL  
APPLICATION

Dear Mr. Skolds:

By letter dated January 3, 2003, Exelon Generation Company, LLC (EGC) submitted, for the Nuclear Regulatory Commission's (NRC's) review, an application pursuant to 10 CFR Part 54, to renew the operating license for the Dresden Nuclear Power Station, Units 2 and 3, and Quad Cities Nuclear Power Station, Units 1 and 2. We are reviewing the information contained in the license renewal application and have identified, in the enclosure, areas where additional information is needed to complete its review. Specifically, the enclosed request for additional information (RAIs) is from Section 2.1, "Scoping and Screening Methodology."

We have discussed these RAIs with your staff during an audit conducted on May 20-23, 2003, and subsequently provided the RAIs to Messrs. R. Stachniak and F. Polaski of your staff on June 12, 2003. We are willing to meet with EGC prior to the submittal of the responses to provide clarifications of the staff's RAIs.

Sincerely,

*/RA/*

Tae Kim, Senior Project Manager  
License Renewal Section A  
License Renewal and Environmental Impacts Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket Nos.: 50-237, 50-249, 50-254,  
and 50-265

Enclosure: As stated

DISTRIBUTION: See next page

Document Name: C:\ORPCheckout\FileNET\ML032020080.wpd \*See previous concurrences

\*\*Cover letter only

|        |              |              |              |              |              |
|--------|--------------|--------------|--------------|--------------|--------------|
| OFFICE | PM:RLEP:DRIP | LA:RLEP:DRIP | PM:RLEP:DRIP | SC:DIPM:IEHB | SC:RLEP:DRIP |
| NAME   | KCorp*       | YEdmonds**   | TKim         | DThatcher*   | SLee         |
| DATE   | 07/07/2003   | 7/18/2003    | 7/19/2003    | 07/10/2003   | 7/21/2003    |

OFFICIAL RECORD COPY

DISTRIBUTION: Letter to Mr. John L. Skolds, Date: July 21, 2003, ML032020080

**HARD COPY**

RLEP RF

T. Kim

**E-MAIL:**

PUBLIC

W. Borchardt

D. Matthews

F. Gillespie

RidsNrrDe

E. Imbro

G. Bagchi

K. Manoly

W. Bateman

J. Calvo

H. Nieh

H. Walker

S. Black

B. Boger

D. Thatcher

G. Galletti

C. Li

J. Moore

R. Weisman

M. Mayfield

A. Murphy

W. McDowell

S. Smith (srs3)

C. Munson

RLEP Staff

-----

L. Rossbach

C. Lyon

M. Ring, RIII

Dresden and Quad Cities Nuclear Power Stations

cc:

Site Vice President - Quad Cities Nuclear  
Power Station  
Exelon Generation Company, LLC  
22710 206th Avenue N.  
Cordova, IL 61242-9740

Quad Cities Nuclear Power Station Plant  
Manager  
Exelon Generation Company, LLC  
22710 206th Avenue N.  
Cordova, IL 61242-9740

Regulatory Assurance Manager - Quad Cities  
Exelon Generation Company, LLC  
22710 206th Avenue N.  
Cordova, IL 61242-9740

Quad Cities Resident Inspectors Office  
U.S. Nuclear Regulatory Commission  
22712 206th Avenue N.  
Cordova, IL 61242

William D. Leech  
Manager - Nuclear  
MidAmerican Energy Company  
P.O. Box 657  
Des Moines, IA 50303

Vice President - Law and Regulatory Affairs  
MidAmerican Energy Company  
One River Center Place  
106 E. Second Street  
P.O. Box 4350  
Davenport, IA 52808

Chairman  
Rock Island County Board of Supervisors  
1504 3rd Avenue  
Rock Island County Office Bldg.  
Rock Island, IL 61201

Regional Administrator  
U.S. NRC, Region III  
801 Warrenville Road  
Lisle, IL 60532-4351

Document Control Desk-Licensing  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, IL 60555

Senior Vice President - Nuclear Services  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, IL 60555

Vice President - Engineering  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, IL 60555

Chief Operating Officer  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, IL 60555

Director - Licensing  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, IL 60555

Senior Counsel, Nuclear  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, IL 60555

Manager Licensing - Dresden and Quad  
Cities  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, IL 60555

Robert E. Stachniak  
Sr. Engineer - License Renewal Prog.  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, IL 60555

Mr. Fred Emerson  
Nuclear Energy Institute  
1776 I Street, N.W., Suite 400  
Washington, DC 20006-3708

Site Vice President - Dresden Nuclear  
Power Station  
Exelon Generation Company, LLC  
6500 N. Dresden Road  
Morris, IL 60450-9765

Dresden Nuclear Power Station Plant  
Manager  
Exelon Generation Company, LLC  
6500 N. Dresden Road  
Morris, IL 60450-9765

Regulatory Assurance Manager - Dresden  
Exelon Generation Company, LLC  
6500 N. Dresden Road  
Morris, IL 60450-9765

Dresden Resident Inspectors Office  
U.S. Nuclear Regulatory Commission  
6500 N. Dresden Road  
Morris, IL 60450-9766

Chairman  
Grundy County Board  
Administration Building  
1320 Union Street  
Morris, IL 60450

Illinois Department of Nuclear Safety  
Office of Nuclear Facility Safety  
1035 Outer Park Drive  
Springfield, IL 62704

Vice President - Licensing and  
Regulatory Affairs  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, IL 60555

Frederick W. Polaski  
Manager - License Renewal Program  
Exelon Generation Company, LLC  
200 Exelon Way, KSA 1-N-3  
Kennett Square, PA 19348

DRESDEN AND QUAD CITIES  
LICENSE RENEWAL APPLICATION  
REQUEST FOR ADDITIONAL INFORMATION

**RAI 2.1-1**

10 CFR 54(a)(1)(iii) requires, in part, that the applicant consider within the scope of license renewal those systems, structures, and components that ensure the capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to those referred to in §50.34(a)(1), §50.67(b)(2), or §100.11. Although the wording in the license renewal application (LRA), Section 2.1.2.1, "Title 10 CFR 54.4(a)(1) - Safety-related," is consistent with this requirement, the scoping criteria definition documented in Section 4.1.4 of procedure GE-NE-LRTI-2000, "Scoping and Screening of Systems, Structures, and Components for License Renewal," differs from the wording in 10 CFR 54(a)(1)(iii). Specifically, the GE-NE-LRTI-2000 safety-related scoping definition does not refer to offsite exposures comparable to those referred to in §50.34(a)(1) and §50.67(b)(2). Since the scoping implementation procedure does not directly refer to the offsite exposures limitations contained in §50.34(a)(1) and §50.67(b)(2), describe how these exposure limitations, as applicable, were factored into the license renewal scoping and screening process.

**RAI 2.1-2**

By letters dated December 3, 2001, and March 15, 2002, the Nuclear Regulatory Commission (NRC) issued a staff position to the Nuclear Energy Institute (NEI) which described areas to be considered and options it expects licensees to use to determine what systems, structures, or components (SSCs) meet the 10 CFR 54.4(a)(2) criterion (i.e., All nonsafety-related SSCs whose failure could prevent satisfactory accomplishment of any safety-related functions identified in paragraphs (a)(1)(i),(ii),(iii) of this section.)

The December 3<sup>rd</sup> letter provided specific examples of operating experience which identified pipe failure events (summarized in Information Notice (IN) 2001-09, "Main Feedwater System Degradation in Safety-Related ASME Code Class 2 Piping Inside the Containment of a Pressurized Water Reactor") and the approaches that the NRC considers acceptable to determine which piping systems should be included in scope based on the 54.4(a)(2) criterion.

The March 15<sup>th</sup> letter further described the staff's expectations for the evaluation of non-piping SSCs to determine which additional nonsafety-related SSCs are within scope. The position states that applicants should not consider hypothetical failures, but rather should base their evaluation on the plant's current licensing basis (CLB), engineering judgement and analyses, and relevant operating experience. The letter further describes operating experience as all documented plant-specific and industry-wide experience which can be used to determine the plausibility of a failure. Operating experience documentation sources would include NRC generic communications and event reports, plant-specific condition reports, industry reports such as SOERs, and engineering evaluations.

Based on a review of the license renewal application (LRA), the applicant's scoping and screening implementation procedures, and discussions with the applicant, the staff determined that additional information is required with respect to certain aspects of the applicant's evaluation of the 10 CFR 54.4(a)(2) criteria. Please address the following issues:

Enclosure

- (a) LRA Section 2.1.2.2, "Title 10 CFR 54.4(a)(2) - Non-safety related affecting safety-related," stated that plant walkdowns were performed to identify those areas containing safety-related SSCs. The applicant further stated in LRA Section 2.1.2.2 that, in those instances where a plant walkdown could not be performed, plant drawings were used to identify those areas containing safety-related SSCs and identify component interactions. For areas where walkdowns could not be performed to identify nonsafety-related SSCs that could affect safety-related SSCs, describe the methodology and documentation sources used to perform scoping pursuant to 10 CFR 54.4(a)(2). In your response, list the areas where walkdowns were not performed and the basis for not performing the walkdowns.
- (b) Instruction LRTI-16, "Identification of Non Safety Related Structures and Components Which Spatially or Structurally Interact With Safety Related Systems," describes the process used to identify nonsafety-related systems and components which meet the scoping criteria specified in 10 CFR 54.4(a)(2) due to spatial or structural interaction with safety-related systems. Section 4.3 of LRTI-16 states that nonsafety-related systems are evaluated using the criteria provided in LRTI-16, Table 2, "Spatial Interaction Screening Criteria." Describe the basis and/or justification for the use of the following spatial interaction screening criteria contained in LRTI-16, Table 2:
- Cables in conduit or trays are not affected by water sprays as long as the spray does not target a cable termination area. Nor is it credible that water would be channeled to a termination area (LRTI-16, Table 2, Item 4).
  - Pipe whip and jet impingement only apply to high energy systems containing fluids with a temperatures  $\geq 200$  F and a pressure  $\geq 275$  psig (LRTI-16, Table 2, Item 5). The staff noted that this definition of high energy systems appeared to be inconsistent with the current licensing basis definition of a high energy system (for example, see Dresden UFSAR, Section 3.6.1.1.1.1).
  - Fluid sprays can only affect active components (LRTI-16, Table 2, Item 6).
  - Early detection of leaks (sumps and floor drain systems) is taken credit in the scope of the rule to prevent long term degradation of passive equipment and flooding beyond the lowest elevation of the building (LRTI-16, Table 2, Item 8).
  - Spray from high energy systems can affect equipment up to 25 feet (LRTI-16, Table 2, Item 10).
  - Spray from medium/low energy systems can affect equipment up to 20 feet (LRTI-16, Table 2, Item 11).
- (c) Section 2.1.2.2 of the LRA states that pipe whip, jet impingement, general flooding, or spray of a gas were not considered credible interactions for gas systems to adversely affect safety-related SSCs. LRTI-16, Table 2, Item 3, states, "while falling equipment from gas systems can spatially impact safety-related components located below them, the only credible manner in which equipment can fall is through failure of the attached supports." Consistent with the staff position described in the March 15 letter, please describe your scoping methodology implemented for the evaluation of the

10 CFR 54.4(a)(2) criteria as it relates to the non-fluid-filled SSCs of interest. As part of your response please indicate the non-fluid-filled SSCs evaluated and describe the site and industry operating experience relied on to determine the potential for failures of such non-fluid-filled SSCs which could impact safety-related SSCs within scope.

- (d) As described in the March 15 letter, if an applicant uses a mitigative option when performing the scoping of nonsafety-related SSCs under 10 CFR 54.4(a)(2), the applicant should demonstrate that plant mitigative features are adequate to protect safety-related SSCs from nonsafety-related SSC failures, regardless of failure location. If an applicant cannot demonstrate that the mitigative features are adequate to protect safety-related SSCs from the consequences of nonsafety-related SSC failures, then the entire nonsafety-related SSC is required to be brought into scope of license renewal.

In reviewing the LRA, the NRC staff was unable to determine if the 10 CFR 54.4(a)(2) scoping methodology considered failures at all piping locations where age-related degradation is possible. Please clarify how the scoping methodology of nonsafety-related piping was performed relative to the guidance contained in the staff's March 15 letter.

- (e) In discussions with the Exelon license renewal project team, the NRC staff noted some cases where nonsafety-related plant equipment was credited with providing anchorage for nonsafety-related piping that was attached to safety-related piping. In these cases, the nonsafety-related piping was placed within the scope of license renewal, but the plant equipment (such as a heat exchanger) was not considered to be within scope. For cases where an entire pipe run including both safety and nonsafety-related piping was analyzed as part of the current licensing basis to establish that it could withstand design basis event loads, NUREG-1800, Section 2.1.3.1.2 indicates that the scoping methodology includes: (1) the nonsafety-related piping up to its anchors and (2) the associated piping anchors as being within the scope of license renewal under 10 CFR 54.4(a)(2). Because the plant equipment credited with providing support to nonsafety-related piping within the scope of license renewal appears to be equivalent to an associated piping anchor as described in NUREG-1800, provide justification for not including this plant equipment within the scope of license renewal.

In addressing each of the above issues, if your review indicates that use of the scoping methodology screened out potential nonsafety-related SSCs that could spatially interact with safety-related SSCs, describe any additional scoping evaluations performed to address the 10 CFR 54.4(a)(2) criteria. As part of your response, list any additional SSCs included within scope as a result of your efforts, and list those SSCs for which aging management reviews were conducted, and for each SSC describe the aging management programs, as applicable, to be credited for managing the identified aging effects.

### **RAI 2.1-3**

During the scoping and screening methodology audit, the staff discussed the applicant's position concerning the potential long-term program implementation of license renewal requirements and commitments into the operational phase of the plant during the period of extended operation. As a result of these discussions, the NRC staff concluded that the applicant needs to formally document the process it intends to implement at Dresden and Quad

Cities to satisfy the requirements of 10 CFR 54.37(b). The discussion should include, as appropriate, a description of the current configuration and design control processes including references to implementation guidance for those processes which are currently being reviewed for potential impact, and identification of any new process(s) or procedure(s) planned to address the integration of the LRA methodology and guidance into the operational phase of the plant.

#### **RAI 2.1-4**

The NRC staff reviewed the applicant's aging management programs described in Appendix A, "Updated Safety Analysis Report (USAR) Supplement," and Appendix B, "Aging Management Activities," of the Dresden and Quad Cities license renewal application. The purpose of this review was to assure that the aging management activities were consistent with the staff's guidance described in NUREG-1800, Section A.2, "Quality Assurance for Aging Management Programs (Branch Technical Position IQMB-1)," regarding quality assurance attributes of aging management programs.

Based on the staff's evaluation, the descriptions and applicability of the plant-specific aging management programs and their associated quality attributes provided in Appendix A.2 and Appendix B.2 of the LRA are consistent with the staff's position regarding quality assurance for aging management. However, the applicant has not sufficiently described the use of the quality assurance program and its associated attributes (corrective action, confirmation process, and administrative controls) in the discussions provided for aging management programs described in Appendix A.1 and Appendix B.1. The staff requests that the applicant supplement the descriptions in the Appendix A, "Updated Safety Analysis Report (USAR) Supplement," and Appendix B, "Aging Management Activities" to include a description of the quality assurance program attributes, including references to pertinent implementing guidance as necessary, which are credited for the programs described in Appendix A.1 and Appendix B.1 of the LRA. This description in Appendix B.1 should be consistent with the level of detail provided for the plant-specific aging management program descriptions in Appendix B.2. The description in Appendix A.1 should provide sufficient information for the staff to determine if the quality attributes for the Appendix A.1 aging management programs are consistent with the review acceptance criteria contained in NUREG-1800, Section A.2, "Quality Assurance for Aging Management Programs (Branch Technical Position IQMB-1)."

#### **RAI 2.1-5**

In Regulatory Guide 1.188, "Standard Format and Content for Application to Renew Nuclear Power Plant Operating Licenses," issued July 2001, the NRC endorsed NEI 95-10, "Industry Guideline for Implementing the Requirements of 10 CFR 54 - The License Renewal Rule," Revision 3 (March 2001), as providing an acceptable method for complying with the license renewal rule. In Section 2.1.1 of the LRA, the applicant states that scoping and screening have been performed consistent with the guidelines in NEI 95-10.

Based on a review of the applicant's scoping and screening procedures, and discussions with the Exelon license renewal project manager, the staff determined that the applicant implemented NEI 95-10, Revision 2, for the development of the LRA. For example, procedure PP-DRE&QDC Rev 02-AP, "Active/Passive Classification and Intended Function Determination of Structures and Components," Section 3, stated that the classification of components was

performed in conformance and consistent with the guidelines provided in NEI 95-10, Revision 2. Because Exelon utilized a version of NEI 95-10 that has not been endorsed by the NRC staff for LRA development, Exelon is requested to identify the differences that exist between Revisions 2 and 3 of NEI 95-10 and the potential impact on the license renewal application.

**RAI 2.1-6**

NUREG-1800, Section 2.1.3.1.3, "Regulated Events," states that all SSCs that are relied upon in the plant's CLB (as defined in 10 CFR 54.3), plant-specific experience, industry-wide experience (as appropriate), and safety analyses or plant evaluations to perform a function that demonstrates compliance with NRC regulations identified under 10 CFR 54.4(a)(3), are required to be included within the scope of the rule. As part of the LRA review, the NRC staff evaluates the scope and depth of the applicant's document review to provide assurance that the scoping methodology considered all SSC intended functions.

Section 2.1.3.5 of the LRA identifies Technical Position Papers as a documentation source for license renewal scoping under 10 CFR 54.4(a)(3). Additionally, the staff noted that position papers were developed to support certain aspects of the scoping and screening methodology, such as treatment of insulation, classification of SSCs as active or passive, and scoping of electrical equipment. In reviewing the LRA and scoping and screening implementation procedures, the NRC staff was unable to determine the extent that the CLB was reviewed during position paper development. With regard to the technical position papers, provide the following information:

- (a) Describe the methodology used to develop technical position papers. In your response, state which CLB source documents were used to develop the position papers.
- (b) In discussions with the Exelon license renewal project managers during the scoping and screening methodology audit, it was identified that an electronic document database was used to identify CLB documents pertinent to position paper development. Describe the controls and processes, including proceduralized controls, used to ensure that the electronic current licensing basis document database was complete and accurate.
- (c) In reviewing the technical position papers for regulated events, the NRC staff noted that the position papers identify SSC intended functions. Additionally, procedure "Desktop Guide - Scoping & Screening of Systems, Structures and Components," Section 3, Step 6, states that, "If the related Position Paper(s) say that a function of the System/Structure is credited to satisfy one of the questions 5 through 8, IDENTIFY the credited function(s) as an Intended Function(s)." However, during the scoping and screening methodology audit, the Exelon license renewal project team indicated that technical position papers were not intended to identify all credited SSC functions for the mitigation of regulated events. Please clarify how the intended functions identified in the technical position papers were used to support the scoping and screening methodology. If the technical position papers were not used to identify all SSC intended functions related to the mitigation of regulated events, describe how system, structure, and component level intended functions for SSCs credited in mitigating regulated events were identified.

**RAI 2.1-7**

10 CFR 54.4(a)(1), states, in part, that SSCs within the scope of license renewal include safety-related systems, structures, and components which are those relied upon to remain functional during and following design-basis events (as defined in 10 CFR 50.49(b)(1)). 10 CFR 50.49, states that design basis events are defined as conditions of normal operation, including anticipated operational occurrences, design basis accidents, external events, and natural phenomena for which the plant must be designed. In regard to identification of design basis events, Section 2.1.3, "Review Procedures," of NUREG-1800 states:

The set of design basis events as defined in the rule is not limited to Chapter 15 (or equivalent) of the UFSAR. Examples of design basis events that may not be described in this chapter include external events, such as floods, storms, earthquakes, tornadoes, or hurricanes, and internal events, such as a high-energy-line break. Information regarding design basis events as defined in 10 CFR 50.49(b)(1) may be found in any chapter of the facility UFSAR, the Commission's regulations, NRC orders, exemptions, or license conditions within the CLB. These sources should also be reviewed to identify systems, structures and components that are relied upon to remain functional during and following design basis events (as defined in 10 CFR 50.49(b)(1)) to ensure the functions described in 10 CFR 54.4(a)(1).

During the scoping and screening methodology audit, the NRC staff questioned how non-accident design basis events, particularly design basis events that may not be described in the UFSAR, were considered during scoping. The NRC audit team noted that limiting the review of design bases events to design basis accidents described in the UFSAR could result in omission of safety-related functions described in the current licensing basis. For example, during a flooding event, the Dresden Updated Final Safety Analysis Report (UFSAR), Section 3.4.1.1, "External Flood Protection Measures," states that "if the water level reaches 513 feet at the plant site, cooling of the reactors will be transferred to the isolation condensers, which will thereafter maintain the primary system in a safe shutdown condition until the flood waters have receded and startup procedures can be initiated." Dresden USAR Section 2.4.3, states that the probable maximum flood elevation at the Dresden site is 528 feet. The team noted that the isolation condenser system level intended functions did not include a safety-related function for providing capability to shutdown the reactor and maintain it in a safe shutdown condition during a flooding event. For the isolation condenser, please explain the basis for the determination that the safety-related intended functions of the isolation condenser system did not include shutting down the reactor and maintaining it in a safe shutdown condition. Additionally, describe the methodology used to ensure that all design bases events (including conditions of normal operation, anticipated operational occurrences, design basis accidents, external events, and natural phenomena) were addressed during license renewal scoping. In your response, indicate the documentation sources reviewed to ensure that all design basis events were identified.

If, in addressing the above issues, your review indicates that additional scoping evaluations are required, describe these additional scoping evaluations performed to address the 10 CFR 54.4(a)(1) criteria. As applicable, list any additional SSCs included within scope as a result of your efforts, and list those SCs for which aging management reviews were conducted, and for each SC describe the aging management programs, as applicable, to be credited for managing the identified aging effects.

**RAI 2.1-8**

10 CFR 54.21(a)(3) requires, in part, that the integrated plant assessment contained in the license renewal application demonstrate that the effects of aging will be adequately managed so that the intended function(s) of systems, structures and components within the scope of 10 CFR 54 will be maintained consistent with the current licensing basis for the period of extended operation. 10 CFR 54.3(a) states that the current licensing basis is the set of NRC requirements applicable to a specific plant and a licensee's written commitments for ensuring compliance with and operation within applicable NRC requirements and the plant-specific design basis that are docketed and in effect. 10 CFR 54.3(a) further states that the CLB includes certain NRC regulations; orders; license conditions; exemptions; technical specifications; design basis information documented in the most recent final safety evaluation report; and licensee commitments remaining in effect that were made in docketed licensing correspondence such as licensee responses to NRC bulletins, generic letters, and enforcement actions, as well as licensee commitments documented in NRC safety evaluations or licensee event reports.

LRA Section 2.1.3, "Documentation Sources Used for Scoping and Screening," provides a description of the CLB and related documents used during the scoping and screening process. Procedure GE-NE-LRTI-2000, "Scoping and Screening of Systems, Structures, and Components for License Renewal," describes the process used to identify those SSCs that fall within the scope of 10 CFR 54. GE-NE-LRTI-2000, Section 4.0, "Instructions," states that CLB documents must be utilized when determining whether a system, structure, or component falls within the scope 10 CFR 54, but does not describe the method used to review certain current licensing basis and design basis documents such as safety evaluation reports, license event reports, and responses to NRC bulletins, generic letters, and enforcement actions in a manner that ensured that all system and structure functions were identified for the purposes of license renewal scoping. Please describe the method(s) used to review the documents identified in Section 2.1.3 of the LRA for the purposes of identifying all applicable SSC functions.

**RAI 2.1-9**

Section 2.1.6 of the LRA states, in part:

When a supporting system or structure was identified for an intended function that satisfies only criterion 10 CFR 54(a)(3), the scoping process did not require that the supporting function be classified as an intended function unless a requirement in a current licensing basis documented explicitly identifies a requirement for the supporting function.

10 CFR 54.4(a)(3) requires that all systems, structures, and components relied on in safety analyses or plant evaluations to perform a function that demonstrates compliance with specific regulated events be within the scope of license renewal. Please describe the intent and basis for the 10 CFR 54.4(a)(3) support function scoping guidance contained in Section 2.1.6 of the LRA. In your response, specifically describe the extent of reviews conducted to identify support functions to SSCs within the scope of license renewal due to the 10 CFR 54.4(a)(3) criteria.

### **RAI 2.1-10**

Section 2.1.4.1 of the LRA stated that a component was determined to be in-scope if it was safety-related meeting the criteria of 10 CFR 54.4(a)(1), if it was determined that the component was needed to fulfill a system intended function, if the component met the criteria of 10 CFR 54.4(a)(2), or if the component was needed to support the intended function of the system needed to meet the regulation for regulated events.

LRA Section 2.3.3.1, "Refueling Equipment," identified two system-level intended functions for the refueling equipment system: (1) maintain structural integrity to prevent collapse of the platform onto the spent fuel storage racks or the reactor core, and (2) provide interlocks to preclude inadvertent criticality. LRA Table 2.3.3-1, "Component Groups Requiring Aging Management Review – Refueling Equipment System," identified the spent fuel gates as a requiring aging management to maintain a "pressure boundary" component level intended function. Based on a review of LRA Section 2.3.3.1, the NRC staff was unable to determine how the pressure boundary component level function for the spent fuel pool gates supported either of the refueling equipment system-level intended functions in a manner consistent with the component scoping methodology described in Section 2.1.4.1 of the LRA. Describe how the scoping methodology was implemented to identify the need for spent fuel gate pressure boundary integrity to support the specified refueling equipment system intended functions. If the spent fuel pool gate component level function was mis-classified in LRA Table 2.3.3-1, please address the potential extent of condition for this issue on the scoping results for other systems and structures.

### **RAI 2.1-11**

NUREG-1800, Section 2.1.3.1.2, "Nonsafety-Related," states:

To satisfy the scoping criterion under 10 CFR 54.4(a)(2), the applicant must identify those nonsafety-related SSCs (including certain second-, third-, or fourth-level support systems) whose failures are considered in the CLB and could prevent the satisfactory accomplishment of the safety-related function identified under 10 CFR 54.4(a)(1). In order to identify such systems, the applicant should consider those failures identified in (1) the documentation that makes up its CLB, (2) plant-specific operating experience, and (3) industry-wide operating experience that is specifically applicable to its facility.

The LRA Section entitled "Hypothetical Failures and Cascading," located within LRA Section 2.1.6, indicates that only hypothetical failures described in the current licensing basis were considered during SSC scoping. The NRC staff noted that consideration of only hypothetical failures described in the CLB may result in the failure to consider failures identified in plant-specific and industry-wide operating experience. Please describe the intent of this statement in the LRA and discuss how the scoping process considered failures identified in the CLB and plant-specific and industry-wide operating experience that is applicable to the Dresden and Quad Cities facilities consistent with the guidance contained in NUREG-1800.

### **RAI 2.1-12**

10 CFR 54.21(a)(1) requires that structures and components subject to an aging management review shall encompass those structures and components that: (1) perform an intended function without moving parts or a change configuration or properties; and (2) that are not subject to replacement based on a qualified life or specified time period. NUREG-1800, Table 2.1-3, "Specific Staff Guidance on Screening," provides guidance for determining if consumable items should be subject to an aging management review. For consumables that are periodically replaced, Table 2.1-3 states that the applicant should identify the standards that are relied on for replacement as part of the methodology description. For consumable such as packing, gaskets, component seals, and o-rings, Table 2.1-3 states that these components may be excluded from an aging management review using a clear basis.

Scoping and screening procedure GE-NE-LRTI-2000, Section 4.3.8 and Table 7, "Short Lived Components Not Requiring Aging Management," provide guidance for screening certain components, including consumables. In reviewing GE-NE-LRTI-2000, Table 7, the NRC staff was unable to determine the basis for considering some of the components listed in Table 7 to be not subject to an aging management review. For each of the component types listed in Table 7, provide a justification for the determination that the component is not subject to an aging management review. If your review of this issue identified a component type that cannot be generically excluded from an aging management review on a plant-specific basis, please describe any further screening evaluations that were performed. As applicable, list any additional structures and components (SC) for which aging management reviews were conducted, and for each SC describe the aging management programs, as applicable, to be credited for managing the identified aging effects.

### **RAI 2.1-13**

NUREG-1800, Section 2.5.3.1, "Components Within the Scope of License Renewal," states that an applicant may use the plant spaces approach in scoping electrical and instrumentation and control (I&C) components. In the plant spaces approach, an applicant may indicate that all electrical and I&C components located within a particular area are either within or not within the scope of license renewal. NUREG-1800, Table 2.5-1, "Examples of 'Plant Spaces' Approach for Electrical and I&C Scoping and Corresponding Review Procedures," provides guidance for the review of scoping performed in accordance with the plant spaces approach. If the applicant limits the scope of electrical and I&C components considered within the scope of license renewal by excluding components in certain plant spaces, Table 2.5-1 indicates that this approach should not result in failing to place electrical and I&C components that perform intended functions within the scope of license renewal.

Based on a review of the LRA and scoping implementation procedure PP-DRE-QDC Rev. 01 SPACES, "Scoping and Screening Position Paper for Electrical Components," the NRC staff was unable to determine if the applicant excluded electrical components from the scope of license renewal based on their location in a particular plant space. Additionally, Section 3.0.3 of PP-DRE-QDC Rev.01 SPACES allows exclusion of electrical components "which are clearly in systems which are not in the License Renewal scope, or which are determined by other means to be outside license renewal scope" from the scope of license renewal. During the scoping and screening methodology audit, the applicant's license renewal project team indicated that electrical components located within certain plant spaces were excluded from license renewal

scope, in addition to some electrical components that did not perform an intended function. In order to support the staff review of the implementation of the electrical spaces approach, the following information is required:

- (a) Describe the methodology used to exclude electrical equipment located within certain plant spaces from the scope of license renewal. In your response, provide a listing of any plant spaces where electrical and I&C components were generically considered outside the scope of license renewal.
- (b) Describe the methodology used to determine that an electrical or I&C component did not support a license renewal intended function. In your response, address the how the procedural guidance contained in the electrical spaces position paper that allows electrical components which are "determined by other means to be outside the license renewal scope" to be excluded from the scope of license renewal was implemented.